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Improving Stormwater Quality in an Urban Watershed

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November 19, 2010

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Thea Foss Waterway, 1999

Foss Waterway - Background

1985 – Declared a Superfund Site

2001 – City, EPA and Ecology entered an agreement known as the Foss Work plan

- Aggressive source control paired with monitoring
- Focused on the watershed
- Program intent to prevent recontamination

2006 – Cleanup of the waterway complete

- $105 million

Current – Continue program and monitoring in watershed per work plan and NPDES permit.

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Our efforts - 2001

Spill Response

Source control
Investigations and
Enforcement

Business Inspections

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Monitoring 2001 -ongoing

Samples collected at 7 outfalls and in associated tributary areas
Samples collected for stormwater, baseflow and sediment

Whole Water Monitoring

Air Deposition Sampling

Sediment Traps

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Pipe cleaning project – 2007, 2008

Two purposes:

1. Preparation for TV inspection of oldest pipe for rehabilitation project.
2. Find out if we could affect chronic contaminants that defied our source control and source tracing efforts.

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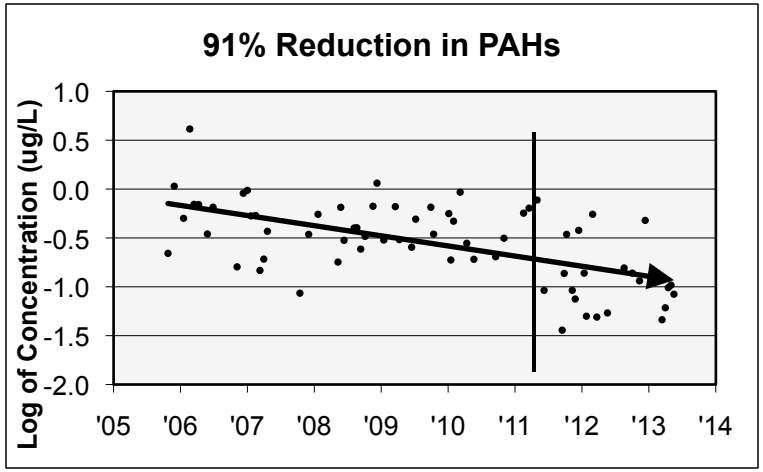
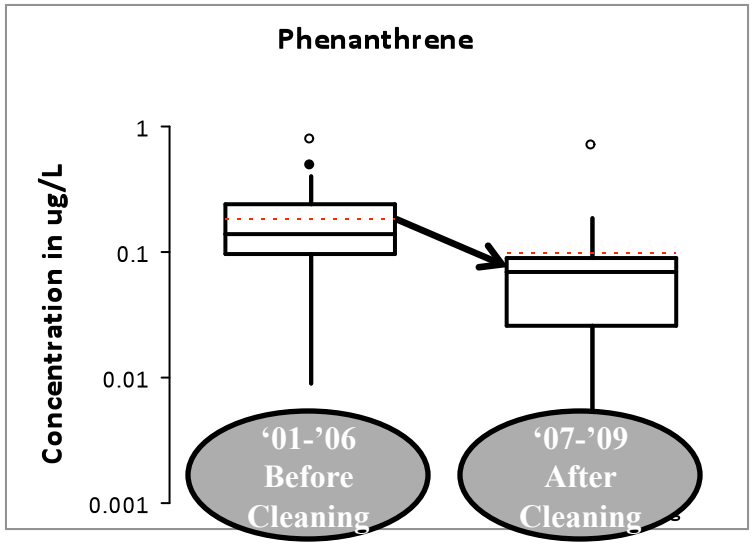
The Monitoring Results

Reduction of Stormwater Concentrations in 10 years		
Chemicals	**Outfalls**	
Solids	235, 237B	57%
Lead	237B	44%
PAHs	230, 237A, 254	60-91%
Phthalates	243, 245	72-76%





Stormwater Concentrations Reduction after Cleaning		
Chemicals	**Outfalls**	
Lead	230, 235	26-31%
PAHs	230, 235, 254	40-60%
Phthalates	235	40%

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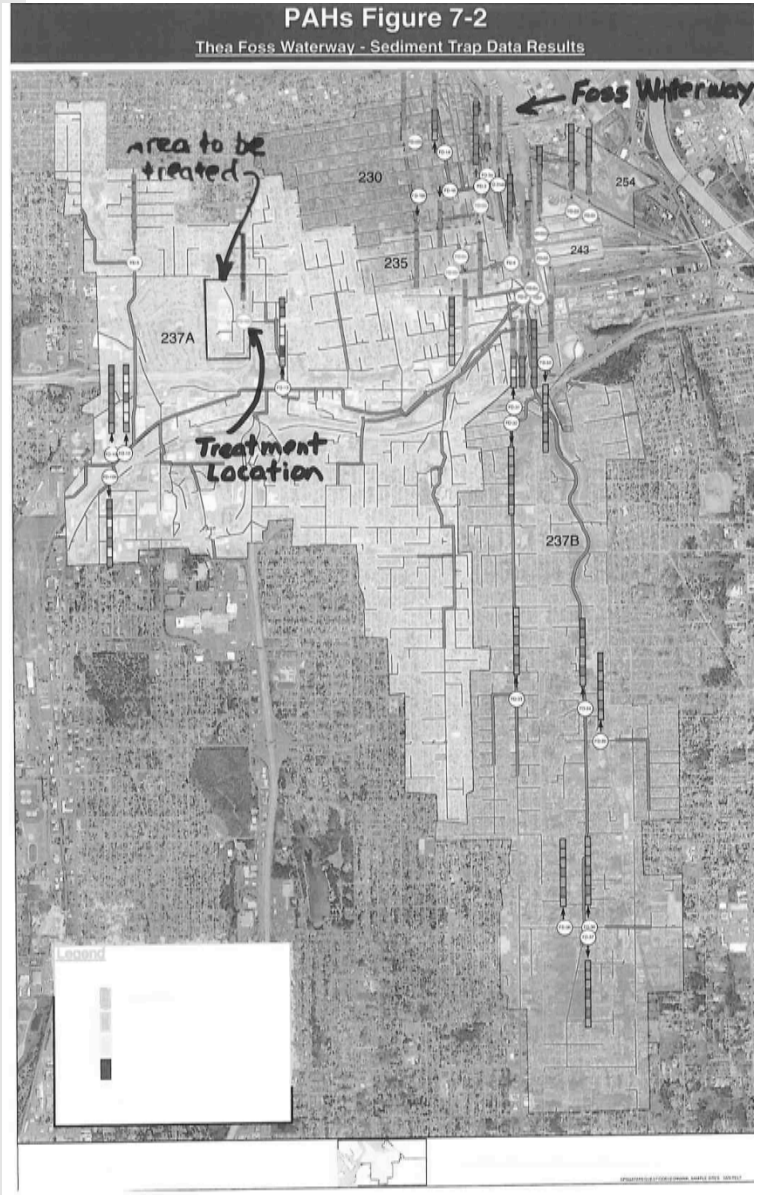
Capital Projects – the final step



In spite of source control, identification and removal of a leaking fuel line and system cleaning… one area was still high in PAHs.

NOW… a capital project!

Treatment Retrofit - 2010

CLEANING VS. TREATING

Pipe Cleaning Project –

- $300,000 initial effort
- 150,000 feet cleaned
- Improves 600 acres
- Continuing to monitor to determine return interval

Treatment retrofit –

- $1 million construction cost
- $30,000 per year maintenance
- Treats 50 acres

Lessons Learned

- Stormwater quality can be improved!
- A successful program will include:
  1. Source control
  2. Aggressive maintenance
  3. Capital projects
- Capital projects used only after first two elements are complete!

Strategies for the Future

- Continue to investigate and understand the system
  - Model of contaminant transport with overlay of BMPs.
  - Rapid assessment program – capacity grant funded
  - New Sediment sampling methods for source tracing – capacity grant funded

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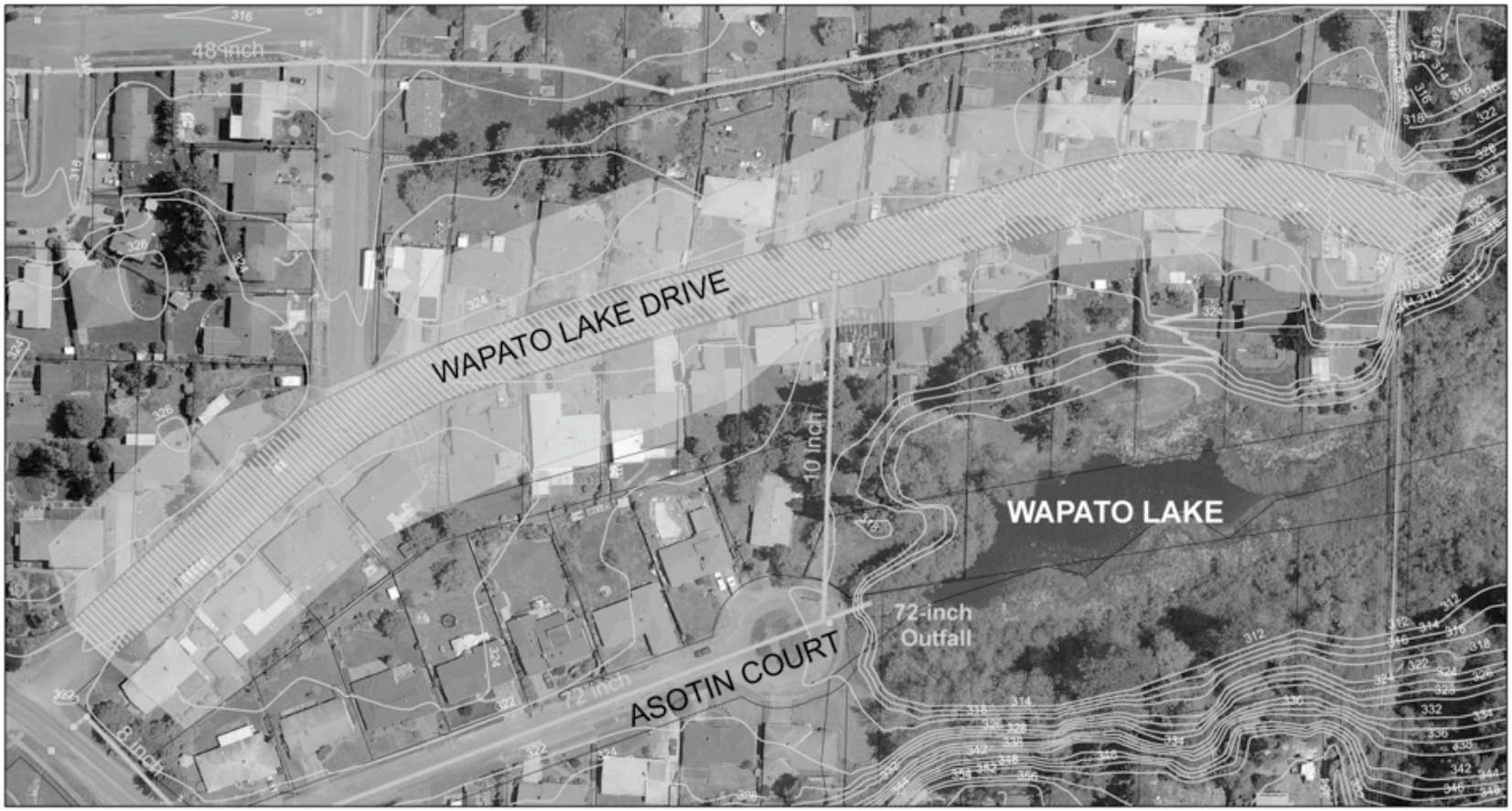
Questions?

Hood Street
Treatment Retrofit



Wapato Lake Drive - Pervious Street

Figure 1-2
Topographic Map and Pervious Pavement

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Asset Management Program

Prioritization of asset areas based on:

1. Source Control – land use impacts
2. Rapid Assessment - condition
3. Modeling – capacity
4. Sampling - quality